Remarks

The Office Action mailed October 6, 2008 has been received and reviewed. Claims 19-29, 37, and 38 having been amended, claims 1-18 having been canceled, without prejudice, and claim 40 having been added, the pending claims are claims 19-40. Reconsideration and withdrawal of the rejections are respectfully requested.

The Claim Objections

Applicants thank the Examiner for pointing out the typographical errors in claims 22 and 33. These typographical errors have been corrected herein.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 19-29 under 35 U.S.C. §103(a) as being unpatentable over Hoescheler et al. (WO 2002/055028; US 2004/0116550) in view of Schmitt et al. (U.S. Patent No. 4,376,835). Each of these claims having been amended, this rejection is rendered moot.

The Examiner rejected claims 30-34 and 36-39 under 35 U.S.C. §103(a) as being unpatentable over Hoescheler et al. (WO 2002/055028; US 2004/0116550) in view of Poole (U.S. Pat. No. 5,849,649) and Schmitt et al. (U.S. Pat. No. 4,376,835). The Examiner rejected claim 35 under 35 U.S.C. §103(a) as being unpatentable over Hoescheler et al. (WO 2002/055028) in view of Poole (U.S. Pat. No. 5,849,649) and Schmitt et al. (U.S. Pat. No. 4,376,835) as applied to claims 30-34 and 36-39 above and further in view of Hecq et al. (U.S. Pat. No. 5,093,196). These rejections are respectfully traversed.

The present invention is directed to a method of producing a glass filler material, the material produced by the method, and dental materials containing the material. Significantly, the method of producing a glass filler material of the present invention is advantageous at least because: (1) the resultant glass filler material can be used with cationically polymerizable monomers; and (2) the method of producing the glass filler material can use a relatively low temperature (e.g., 1200°C).

As discussed in Applicants' specification at page 5, line 26 through page 6, line 21, which describes the state of the art, glass materials that include Group I alkali metal oxides significantly decrease the melting temperature as well as the viscosity of the melted glass. However, the presence of acidic, amphoteric, or basic oxides, such as Group I alkali metal oxides, in a glass filler material can be disadvantageous when combined with polymerizable resins. This is due to undesired interactions between reactive monomers of the polymerizable resins and such oxides.

US2004/0116550 (Hoescheler) describes a glass composition that is melted at a relatively high temperature (e.g., 1250°C to 1650°C) unless certain components (e.g., oxides of alkali metals/ions - Li, Na, K, Rb, Cs) are present to reduce the melting temperature. Specifically, US2004/0116550 (Hoescheler) describes a high temperature melting process (Paragraph [0038]) and in particular a plasma melting process or an induction melting process (Paragraphs [0049-0052]). The amount of alkali metal oxides used for the production process is in a range of 0-3 wt% (Paragraph [0040]; Table 1).

There is no teaching or suggestion of Applicants' claimed method of making glass filler material in US2004/0116550. Specifically, there is no teaching or suggestion of a method that involves dealkalizing the glass powder. According to the invention (as recited in currently pending claim 36), the method involves **a) melting a composition containing a considerably high amount of alkali metal oxides (about 9 to about 20 mol%)**, b) crushing the melted glass, c) milling the glass granulate, **d) dealkalizing the glass powder in excess with a dealkalizing agent**, e) removing the dealkalizing agent, and f) drying the glass powder. After conducting such a process a glass filler material as described in claim 30 can be obtained with less alkali metal oxides: about 0.05 to about 4 mol%, as recited in claim 19; about 0.05 to about 3 mol%, as recited in claim 20; and about 0.05 to about 3 mol%, as recited in claim 21 (see also, the Examples and Table 2).

U.S. Pat. No. 4,376,835 (Schmitt) describes a production process starting with a composition containing a relatively low content of alkali metal oxide (e.g., 2.7 wt% for Na; Example 1, at col. 6, line 28; 2.1 wt% Na; Example 8, at col. 8, line 17), as opposed to the 9 to

20 mol% initially used in Applicant's method of claim 30. Also, the particulate composition described in currently pending claim 30 is not suggested. Moreover, Schmitt is focused on a reactive glass to be used for Glass Ionomer Cements (see, col. 2, lines 3-14), whereas the present invention is focused on cationically curable compositions (see, for example, Applicant's specification application at page 1, lines 5-8), that is, on a composition hardening with a completely different hardening mechanism. With respect to this point, the Examiner's attention is directed to new claim 40.

At page 6 of the Office Action, the Examiner assumes that U.S. Pat. No. 4,376,835 (Schmitt) "discloses a composition comprising silica oxide, alkali and earth alkali oxides in which a depletion zone of alkali metals is obtained such that the concentration of alkali metals are different at the surface than at the core" and points to col. 2, lines 20-37 and col. 3, lines 13-19. At col. 3, lines 13-19 of Schmitt, however, it is stated that "The glass powder particles ... are depleted of calcium at their surface ...." (emphasis added). It should be noted that calcium is not an alkali metal but an earth alkaline metal. The claims of the present invention focus on the change in the amount of alkali ions during the method of making the glass filler material, not on earth alkali ions.

As an additional note, and in an attempt to correct the record, the calculations presented by the Examiner do not seem to be correct (see the Office Action at pages 4 and 8 with respect to the determination of the mol percent of the composition). For example, none of the g/mol-values listed by the Examiner is correct (e.g., B_2O_3 has a molecular weight of 69.6 g/mol and not 34 g/mol as assumed by the Examiner). The correct molecular weights are as follows: SiO_2 -- 60 g/mol; B_2O_3 -- 69.6 g/mol; ZrO_2 -- 123 g/mol; Li_2O -- 29.9 g/mol; SrO -- 103.6 g/mol. Correct calculations based on these molecular weights can be provided if the Examiner would find this helpful.

Thus, the present invention as recited in the currently pending claims is not rendered obvious by the combination of Hoescheler et al. (WO 2002/055028; US 2004/0116550) in view of Schmitt et al. (U.S. Patent No. 4,376,835). Also, the other cited documents (Poole (U.S. Pat. No. 5,849,649) and Hecq et al. (U.S. Pat. No. 5,093,196)) do not provide that which is missing

from the combination of Hoescheler et al. (WO 2002/055028; US 2004/0116550) in view of Schmitt et al. (U.S. Patent No. 4,376,835). Accordingly, withdrawal of these rejections is respectfully requested.

Information Disclosure Statement

Applicants include a Supplemental Information Disclosure Statement and 1449 form which includes reference DD 258 321 as well as an English language abstract. Applicants respectfully request that the 1449 form be considered, initialed by the Examiner, and returned with the next official communication.

Summary

It is respectfully submitted that the pending claims 19-40 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives at the telephone number listed below if it is believed that prosecution of this application may be assisted thereby.

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CERTIFICATE UNDER 37 CFR §1.10:
"Express Mail" mailing label number: EM 163249786 US Date of Deposit: April 6, 2009
The undersigned hereby certifies that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to **Mail Stop Amendment**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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